

**Amendments to the claims:**

This listing of claims is proposed to replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Previously presented) A frame matching method for use in a communication system, wherein the communication system includes at least one transmitting device and at least one receiving device, and wherein the at least one transmitting device includes an encoder and a rate matching device for matching data into a standard data frame, the method comprising the steps of:

- a) obtaining a data set and the standard data frame, wherein the data set comprises a plurality of puncture pattern groups;
- b) determining a standard puncture pattern and a puncture disable quantity based upon the data set obtained in step (a); and
- c) matching the data set into the standard data frame utilizing the standard puncture pattern and one or more same-length alternative patterns differing only in that puncture of selected bits that would be punctured according to the standard puncture pattern is disabled to retain a quantity of the selected bits equal to the puncture disable quantity obtained in step (b).

2. (Original) The frame matching method as defined in Claim 1, wherein the obtaining step (a) further comprises obtaining a data length, a puncture retaining ratio and a bit retention quantity.

3. (Previously presented) A frame matching method for use in a communication system, wherein the communication system includes at least one transmitting device and at least one receiving device, and wherein the at least one transmitting device includes an encoder and a rate matching device for matching data into a standard data frame, the method comprising the steps of:

- a) obtaining a data set and the standard data frame, wherein the data set comprises a plurality of puncture pattern groups, a data length, a puncture retaining ratio and a bit retention quantity;
- b) determining a first puncture pattern, a second puncture pattern, a first puncture pattern repetition quantity and a second puncture pattern repetition quantity and a puncture disable quantity based on the standard data frame, the data length, the puncture retaining ratio and the bit retention quantity obtained in step (a), wherein the first puncture pattern is a standard puncturing pattern and the second puncture pattern differs by disabling puncturing; and
- c) matching the data set into the standard data frame utilizing the standard puncture pattern and the puncture disable quantity obtained in step (b).

4. (Original) The frame matching method as defined in Claim 3, wherein the determining step (b) comprises the sub-steps of:

- i) determining  $Q$  utilizing the following equation:  $Q = \lceil L / (M / PR2) \rceil$ , where  $L$ =the data length,  $M$ =the bit retention quantity and  $PR2$ =the puncture retaining ratio;
- ii) determining  $M'$  utilizing the following equation:  $M' = \text{floor}(N2 / Q)$ , where  $N2$ =the standard frame;
- iii) determining the second puncture pattern repetition quantity ( $Q2$ ) utilizing the following equation:  $Q2 = N2 - M' * Q$ ;
- iv) determining the first puncture pattern repetition quantity ( $Q1$ ) utilizing the following equation:  $Q1 = Q - Q2$ ; and
- v) determining the first puncture pattern and the second puncture pattern.

5. (Original) The frame matching method as defined in Claim 3, wherein the matching step (c) comprises the sub-steps of:

- i) puncturing data utilizing the first puncture pattern for a quantity of times approximately equivalent to the first puncture pattern repetition quantity; and
- ii) puncturing data utilizing the second puncture pattern for a quantity of times approximately equivalent to the second puncture pattern repetition quantity.

6. (Original) The frame matching method as defined in Claim 5, wherein the sub-step (i) is performed before the sub-step (ii).

7. (Original) The frame matching method as defined in Claim 5, wherein the sub-step (ii) is performed before the sub-step (i).

8. (Original) The frame matching method as defined in Claim 5, wherein the sub-step (i) and (ii) are performed concurrently in an alternating fashion.

9. (Original) The frame matching method as defined in Claim 5, wherein the sub-step (i) and (ii) are performed concurrently in a random fashion.

10. (Original) The frame matching method as defined in Claim 5, wherein the sub-step (i) is performed on puncture pattern groups that have a higher priority.

11. (Original) The frame matching method as defined in Claim 5, wherein the sub-step (i) is performed pseudorandomly.

12. (Currently amended) A frame matching method for use in a communication system, wherein the communication system includes at least one transmitting device and at least one receiving device, and wherein the at least one transmitting device includes an encoder and a rate matching device for matching data into a standard data frame for transmission in the system, the method comprising the steps of:

- a) obtaining a data set;
- b) selecting a transmission data frame from a plurality of standard data frames;
- c) determining whether data repetition is required for matching the data set to the transmission data frame, and if so, performing data repetition; and
- d) determining whether data puncturing is required for matching the data set to the transmission data frame by determining whether a data length that is associated with the data set is in accordance with following equation:  $N2 < L < N2/PR2$ , where  $L$  = the data length that is associated with the data set,  $N2$  = the transmission data frame,  $PR2$  = a puncture retaining ratio that is associated with  $N2$ , and if so, performing data puncturing by puncture disabling techniques.

13. (Currently amended) ~~The frame matching method as defined in Claim 12, wherein the selecting step (b) comprises~~ A frame matching method for use in a communication system, wherein the communication system includes at least one transmitting device and at least one receiving device, and wherein the at least one transmitting device includes an encoder and a rate matching device for matching data into a standard data frame for transmission in the system, the method comprising the steps of:

- a) obtaining a data set;
- b) selecting a the transmission data frame that is associated with a frame  $N2$  in accordance with the following equation:  $N1/PR1 < L < N2/PR2$ , where  $L$  = a data length that is associated with the data set,  $N1$  = a standard data frame that is smaller than and adjacent to  $N2$ ,  $PR1$  = a puncture retaining ratio that is associated with  $N1$  and  $PR2$  = a puncture retaining ratio that is associated with  $N2$ , from a plurality of standard data frames;
- c) determining whether data repetition is required for matching the data set to the transmission data frame, and if so, performing data repetition; and
- d) determining whether data puncturing is required for matching the data set to the transmission data frame.

14. (Original) The frame matching method as defined in Claim 12, wherein the determining whether data repetition is required step (c) comprises determining whether a data length associated with the data set is in accordance with following equation:  $L < N2$ , wherein  $L$  is the data length associated with the data set and  $N2$  is the transmission data frame.

15. (Currently amended) The frame matching method as defined in Claim 12, ~~wherein the determining whether data puncturing is required step (d) comprises whether a data length that is associated with the data set is in accordance with following equation:  $N2 < L < N2/PR2$ , where  $L$  = the data length that is associated with the data set,  $N2$  = the transmission data frame,  $PR2$  = a puncture retaining ratio that is associated with  $N2$  further comprising selecting a standard transmission frame for each data set from among a plurality of standard transmission frames having different lengths.~~

16. (Currently amended) A coder, ~~comprising including:~~

- a) an input node for receiving a data set ~~comprising including~~ a plurality of puncture pattern groups;
- b) a puncturing pattern device, operatively coupled to the input node to puncture the data set in accordance with only two puncturing patterns, consisting of a standard puncturing pattern and ~~in accordance with~~ an alternative puncturing pattern differing from the standard pattern only by disabling puncture of an individual bit data element that would be punctured according to the standard pattern; and
- c) an output node, operatively coupled to the puncturing pattern device, capable of outputting data from the puncturing pattern device.

17. (Currently amended) The coder as defined in Claim 16, wherein the coder further comprises a microprocessor, operatively coupled to the ~~standard~~ puncturing pattern device, capable of transmitting a plurality of control commands to the ~~standard~~ puncturing pattern device, wherein the plurality of control commands comprise information regarding disabling puncturing.

18. (Currently amended) The coder as defined in Claim 16, wherein the ~~standard~~ puncturing pattern device is capable of operating in a puncturing data mode and a disable puncturing data mode.

19. (Currently amended) The coder as defined in Claim 18, wherein the ~~standard~~ puncturing pattern device utilizes a first puncture pattern when operating in the puncturing data mode and a second puncture pattern when operating in the disable puncturing data mode.

20. (Canceled)

21. (Canceled)

22. (Currently amended) A frame matching method for use in a communication system, wherein the communication system includes at least one transmitting device and at least one receiving device, and wherein the at least one transmitting device includes an encoder and a rate matching device for matching data into a standard data frame for transmission in the system, the method comprising the steps of:

- a) obtaining a data set;
- b) selecting a transmission data frame from a plurality of standard data frames, including ~~The method of Claim 21 wherein the step of selecting a standard data frame size further includes selecting a the~~ smallest standard frame size large enough to contain the data set if all puncture pattern groups (PPGs) therein are punctured in accordance with a particular standard puncture pattern;
- c) determining whether data repetition is required for matching the data set to the transmission data frame, and if so, performing data repetition; and
- d) determining whether data puncturing is required for matching the data set to the transmission data frame, and if so, performing data puncturing by puncture disabling techniques restricted to puncturing puncture pattern groups (PPGs) of data elements according to the particular standard puncturing pattern, or according to the particular standard puncturing pattern as augmented by disabling puncturing of a selected data element that would otherwise be punctured according to the standard puncturing pattern.

23. (Previously presented) The method of Claim 22, further comprising puncturing some of the PPGs therein in accordance with the standard puncture pattern which retains M data elements from each PPG, and puncturing all other PPGs in accordance with one or another variation of the standard puncture pattern in which puncturing of one ordinarily punctured data element is disabled to retain (M+1) data elements from PPGs thus punctured.

24. (Previously presented) The method of Claim 1, further comprising selecting a standard transmission frame for each data set from among a plurality of standard transmission frames having different lengths.